INSTRUCTION MANUAL FOR

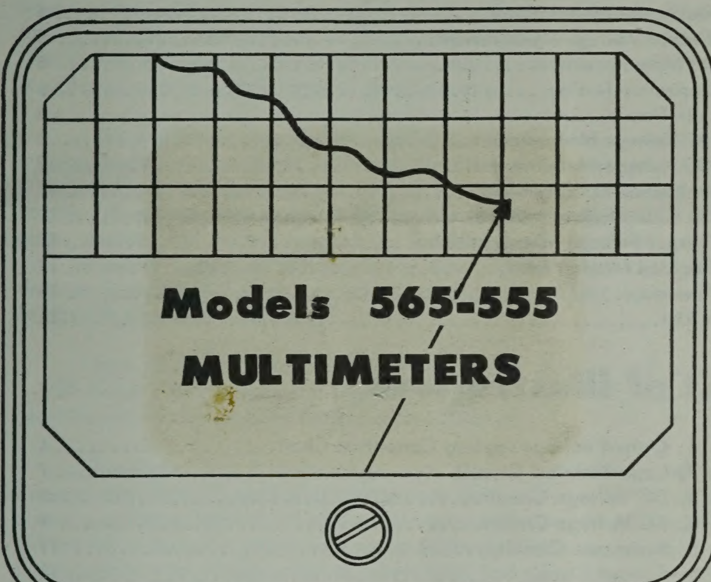
Models 565-555 MULTIMETERS

EICO

ELECTRONIC INSTRUMENT CO., Inc.

33-00 NORTHERN BLVD. LONG ISLAND CITY 1, N. Y.

INSTRUCTION MANUAL FOR



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general description

The EICO Model 565 is a high quality, 31 range multimeter, provided with a 50 microampere, D'Arsonval meter movement to give a sensitivity of 20,000 ohms per volt on dc and 1000 ohms per volt on ac. This high sensitivity results in light loading and therefore minimum disturbance in the circuit under test, an indispensable feature for accurate measurement. The quality of this instrument is further exemplified by the inclusion of wire-wound potentiometers, shunting and in series with the rectifier, which are factory-adjusted to compensate for the individual characteristics of the rectifier in your instrument. This built-in EICO feature assures you of standardized accuracy over a wide range of measurements.

This instrument provides a-c and d-c voltage measurement from .1 volt (on the 2.5 volt scale) to 5000 volts (an internal high voltage multiplier is included). It also provides d-c current measurement from 1 microampere (on the 100 microampere scale) to 10 amperes. Resistance ranges to 20 megohms, output, and decibel ranges bring the total number of useful ranges to 31. An added feature of this instrument is an internal blocking capacitor that can be switched in when it is desired to measure the output signal voltage in circuits where dc is present.

Easy reading with less probability of error is obtained with a large, 4 1/2" meter. The instrument is ruggedly housed in a polished, high-impact bakelite case with a genuine leather carrying handle.

The Model 555 is identical in every respect to the Model 565 with the exception that 1% multiplier resistors are used. The use of 1% resistors allows a maximum error of 3% of the full-scale reading on dc and 5% on ac. This model is desirable where more accurate measurements are required, and is designed to meet the standards of laboratories and schools.

These instruments have the wide scope of ranges, sensitivity, and accuracy that are necessary in television, f-m and a-m servicing and manufacture. They are simply operated, easily read, and rugged enough for hard daily use.

specifications

Ranges

D-C Voltage	0 to 2.5, 10, 50, 250, 1000, 5000 volts at 20,000 ohms per volt

A-C Voltage	0 to 2.5, 10, 50, 250, 1000, 5000 volts at 1000 ohms per volt
D-C Current	0 to 100 ua, 10 ma, 100 ma, 500 ma, 10 amperes (250 millivolt drop across the meter)
Output Voltage	0 to 2.5, 10, 50, 250, 1000, 5000 volts (.1 mfd internal series capacitor)
Decibels	-12 to -55 db in 5 ranges (calibrated for use across a 500 ohm line)

Resistance

Range	Center Scale
0 to 2000 ohms	(12 ohms)
0 to 0.2 megs	(1200 ohms)
0 to 20 megs	(120,000 ohms)

Overall Dimensions	6 3/4" X 5 1/4" X 3"
Weight	2 3/4 pounds with batteries
Cabinet	Highly polished black Bakelite
Panel	Highly polished black Bakelite
Meter	4 1/2 inch face, 50 ua movement

operating instructions

Zero Adjustment

The slotted screw directly beneath the meter face is used to adjust the position of the meter pointer if it is off zero (when no measurement is being made). To bring the meter pointer to zero, use a small screw driver to turn the screw either right or left as is necessary. This adjustment should be made before taking readings.

D-C Voltage Measurement

A - - Set the DC-AC-OUTPUT switch at the DC position.

B - - Set the RANGE switch at the voltage range which you can reasonably expect will include the voltage you are measuring. If you are in doubt about the voltage present, always set the switch at the highest voltage range before applying the unknown voltage to instrument. Failure to observe this precaution

may result in serious damage to the meter. If the unknown voltage is too low for accurate measurement on the highest range, rotate the RANGE switch towards the lowest voltage position until the range is found at which the voltage can be read accurately.

C - - When a voltage is being measured on any range except the 5000 volt range, insert the test leads in the pin jacks marked "+" (POSITIVE) and "-" (COMMON). Place a test lead at each of the two points between which the d-c voltage is to be measured, observing polarities. If you have mistaken the polarities, the pointer will be deflected left of zero, in which case simply reverse the test leads.

D - - Voltages in either the 1000 or the 5000 volt range are measured with the RANGE switch in the 1KV-5KV position. To use the 5000 volt range insert the test leads in the pin jacks marked COMMON (-) and DC-5000V. CAUTION: Extreme care must be exercised when making measurement on the 5000 volt range, as high voltage is dangerous. Never fail to turn off the power when connecting or disconnecting the test leads. The meter and the leads must not be handled while the power is on.

E - - DC voltages are read on the black 0-10, 0-50, 0-250 scales marked D. C. When using the 10, 50, and 250 volt ranges, the meter may be read directly. To obtain the indicated voltage in volts on the 2.5 volt range, divide the reading on the 250 scale by 100. On the 1000 volt range, multiply the reading on the 10 scale by 100; on the 5000 volt range, multiply the reading on the 50 scale by 100 to obtain the indicated voltage in volts.

A-C Voltage Measurement

The instructions for A-C voltage measurement are the same as those for D-C voltage measurement with the following differences in procedure and reading.

A - - Set the DC-AC-OUTPUT switch at the AC position.

B - - To use the 5000 volt range, insert the test leads in the pin jacks marked COMMON (-) and AC-5000V. CAUTION: Extreme care must be exercised when making measurement on the 5000 volt range, as high voltage is dangerous. Never fail to turn off the power when connecting or disconnecting the test leads. The meter and the leads must not be handled while the power is on.

C - - Read the red 0-10, 0-50, 0-250 scale marked A. C. on all voltage ranges except the 2.5 volt range, which is read on the red 0-2.5 scale marked 2.5 V. A. C.

D - - The reading of the meter scales corresponding to each range position is

the same as for DC with the exception of the special 2.5 V. A. C. scale, which is numbered in tenths of a volt.

D-C Current Measurement

CAUTION: Never place the instrument across a voltage source when it is set for current measurement. Failure to observe this precaution may result in serious damage to the meter.

A - - Set the DC-AC-OUTPUT switch at the DC position.

B - - Set the RANGE switch at the current range which you can reasonably expect will include the current you are measuring. If you are in doubt about the current present, always set the switch at the highest current range before inserting the instrument in the circuit. Failure to observe this precaution may result in serious damage to the meter. If the unknown current is too low for accurate measurement on the highest range, rotate the RANGE switch towards the lowest current position until the range is found at which the current can be read accurately.

C - - When a current is being measured on any range except the 10 amp. range, insert the test leads into the pin jacks marked "+" (POSITIVE) and "-" (COMMON) and place the instrument in series with the component through which the current to be measured is flowing (observing current direction). If you have mistaken the direction of current flow, the pointer will be deflected left of zero in which case simply reverse the test leads.

D - - Currents in either the 10 ma range or the 10 amp. range are measured with the RANGE switch in the 10MA-10AMP. position. To use the 10 amp. range insert the test leads in the pin jacks marked "+10 AMP." and "-10 AMP.", taking care to observe the direction of current flow.

E - - D-C currents are read on the black 0-10, 0-50 scales marked D. C. When using the 10 ma and 10 ampere ranges, read the 10 scale directly in ma and amperes respectively. To obtain the indicated current on the 100 ua and the 100 ma ranges, multiply the reading on the 10 scale by 10 and read in ua and ma respectively. On the 500 ma scale, multiply the reading on the 50 scale by 10 and read in ma.

Resistance Measurement

A - - Set the DC-AC-OUTPUT switch at the DC position.

B - - If you are measuring a resistance less than 150 ohms, set the RANGE switch at the RX1 position. For a resistance between 150 and 15,000 ohms,

use the RX100 position, and for a resistance above 15,000 ohms, use the RX 10K position.

C - - Insert the test leads into the pin jacks marked "+" (POSITIVE) and "-" (COMMON).

D - - To zero adjust on any range, short the test leads and rotate the ZERO OHMS knob until the meter pointer is set directly over the zero of the top black scale marked OHMS.

E - - Connect the test leads across the component whose resistance is to be measured. On the RX1 range, read the scale directly in ohms. To obtain the indicated resistance in ohms on the RX100 and the RX10K ranges, multiply the scale reading by 100 and 10,000 respectively.

Output Voltage Measurement

The instructions for output voltage measurement are the same as those for a-c voltage measurement with the exception that the DC-AC-OUTPUT switch is set at the OUTPUT position.

Consideration should be given, however, to the effect of the blocking capacitor when measuring on the 2.5V range at frequencies less than 1000 cycles, the 10V range below 250 cycles, and the 50V range below 60 cycles. On these ranges, below the frequencies given, the ratio of the reactance of the blocking capacitor to the multiplier resistance for the range is too high to neglect the bleeding of the applied voltage by the blocking capacitor. The graph below has been prepared so that measurement can be made in these cases. The graph is used in the following way:

A - - Find the point corresponding to the frequency of the applied voltage on the horizontal scale marked "cycles/sec".

B - - Trace upwards from that point until you strike the curve corresponding to the range on which you are measuring.

C - - Trace along the horizontal line from that point until you strike the vertical scale marked "correction factor".

D - - Multiply the voltage indicated on the meter by the correction factor obtained from the graph to find the true voltage.

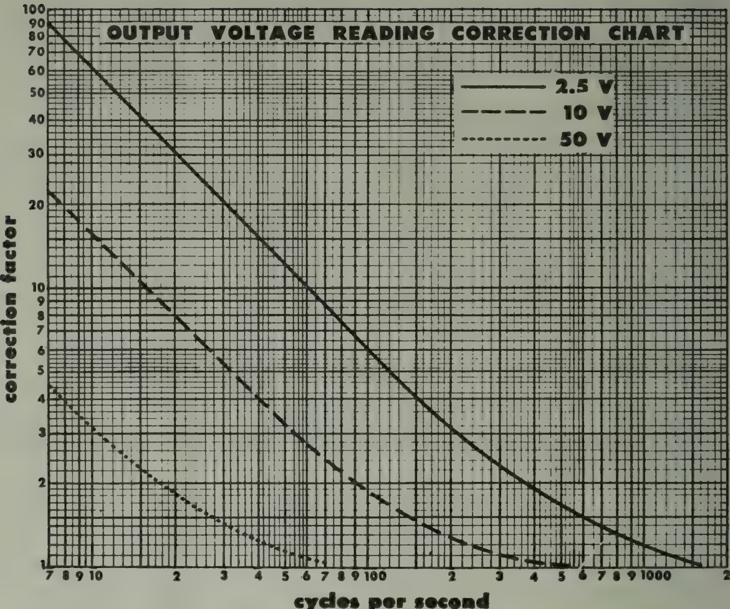


FIG. 1

DB Measurement

The instructions for DB measurement are the same as those for a-c voltage measurement, except for the reading of the meter scales.

When using the 2.5 volt position, the DB scale is read directly; for all other ranges it will be necessary to algebraically add the number of DB charted on the right hand side of the meter face. For example, if the RANGE selector switch is set at 250 volts and the meter indicates +1DB, the actual reading would be 40 + 1 = 41DB. As a further example, if the meter in the 10 volt position reads -8DB, the actual reading would be -8 + 12 = 4DB.

Capacitor Testing

Capacitors can be given a rough test by setting the RANGE switch at R X 10K, and then connecting the test leads to the capacitor terminals. Any type of

capacitor will normally cause some initial deflection of the pointer (from full-scale reading) as the capacitor is charged by the ohmmeter battery. When the capacitor is fully charged, the pointer will indicate the actual capacitor resistance. If no deflection occurs, the capacitor probably has an open lead. In general, a high grade, high voltage electrolytic capacitor should read about 0.5 meg or above, and a low voltage electrolytic by-pass capacitor should read above 0.1 meg. As the resistance of a good paper capacitor is above 50 megs per mfd. and that of a mica capacitor above 100 megs per mfd., the resistance reading for these types may be too high to register on the ohmmeter scale. When testing electrolytic capacitors, connect the test leads to the capacitor terminals of corresponding polarity, as the capacitor offers much lower resistance when polarized incorrectly. After connecting the test leads, allow sufficient time for the pointer to reach the maximum resistance reading.

By connecting the instrument as shown in Fig. 2, it is possible to make a comparative capacity test of paper capacitors. Refer to accompaning chart for the approximate readings that will be obtained when testing capacitors from .001mfd. to 1.0mfd. Do not use this setup to test electrolytic capacitors, because only d-c voltage may be applied to them. Use the 250V AC range at the beginning of the test. This will prevent the meter from being burned out, if a shorted capacitor is tested.

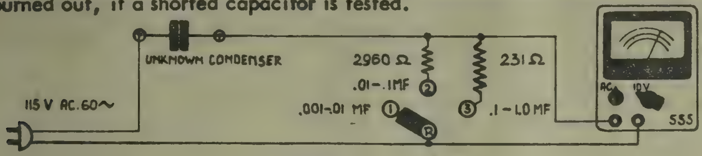


FIG. 2

INTERPOLATION CHART FOR TESTING CAPACITORS

POSITION 1		POSITION 2		POSITION 3	
Unknown Capacitor MFD.	Approx. Reading AC Volts	Unknown Capacitor MFD.	Approx. Reading AC Volts	Unknown Capacitor MFD	Approx. Reading AC Volts
.001	.6	.01	1	.1	1
.002	1.1	.02	2	.2	2
.003	1.5	.03	3	.3	3
.004	1.9	.04	4	.4	4
.005	2.5	.05	5	.5	5
.006	3.0	.06	6	.6	6
.007	3.6	.07	7	.7	7
.008	4.0	.08	8	.8	8
.009	4.4	.09	9	.9	9
.01	4.8	.1	10	1.0	10

circuit theory

Introduction

The purpose of this section is to describe the theory of operation of each of the measuring circuits available with this instrument. Simplified individual schematic diagrams accompany each of the circuit descriptions together with illustrative numerical examples.

DC Voltage Measurement

Fig. 1 shows the internal connections for d-c voltage measurement. Near the center of the diagram is the OUTPUT-AC-DC function switch, S2, which is set at DC (1) when the instrument is to be used as a d-c voltmeter, S1-A, S1-C, and S1-D are each sections of the 4 pole, 12 position RANGE switch S1. Only the five voltage positions are shown, positions and ranges corresponding as follows: 1 -- 1KV-5KV, 2 -- 250V, 3 -- 50V, 4 -- 10V, 5 -- 2.5V. As is shown in the diagram, all five voltage positions of sections S1-A and S1-C respectively are shorted together, whereas in section S1-D, each position introduces a different resistance in series with the meter. External test connections are made by inserting the tips of the test leads in pin jacks J3 (— COMMON) and J4 (+) on all voltage ranges except the 5000V range, when jacks J3 and J5 (D. C. 5000V) are used.

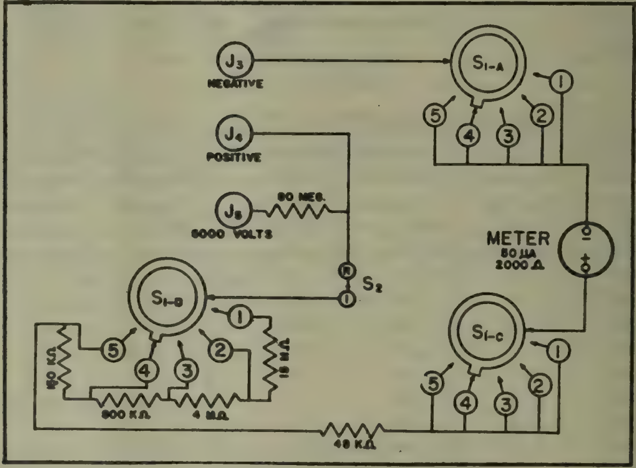


FIG. 3 DC VOLTAGE CIRCUIT

As the meter is fully deflected by a current of 50 ua, the value of the total series resistance for each range is equal to the nominal voltage of the range divided by 50 ua (Ohms Law: E/I = R). In accordance with Ohms Law, on any range, the current, and therefore the deflection, is proportional to the applied voltage, yielding a linear scale.

For example, we will analyze the multimeter circuit when the RANGE switch is at position 1, the 1KV-5KV position. If we trace the circuit between J4 and J3 (jacks used for 1KV range) we find the following resistances: 15M + 4M + 800K + 150K + 48K + 2K (meter) = 20 Megohms. The current through the meter with a 1000 V. D. C. applied would be 1000V/20M = 50 ua; that is, the meter would deflect full scale. If we trace the circuit between J5 and J3 (jacks used for 5KV range) we find an additional 80 Megohm resistor (at right of J5), giving a total series resistance of 100 Megohms. With 5000 V. D. C. applied, the current would be 5000V/100M = 50 ua, thus showing that measurement up to 5000 V. D. C. can be obtained. The remaining ranges can be analyzed in a similar manner by summing up the internal series resistance between J3 and J4 for each voltage position of the RANGE switch.

AC Voltage Measurement

Fig. 2 is a schematic diagram of the internal connections for a-c voltage measurement. Note that the function switch, S2, is set at AC (2) when the instrument is to be used as an a-c voltmeter. Also, as in the d-c voltage circuit, S1-A and S1-C merely serve as closed connectors in every position, while S1-B introduces different resistances in series with the meter. External test connectors are made by inserting the tips of the test leads in pin jacks J3 (COMMON —) and J4 (+) on all voltage ranges except the 5000V range, when jacks J3 and J6 (A. C. 5000V) are used.

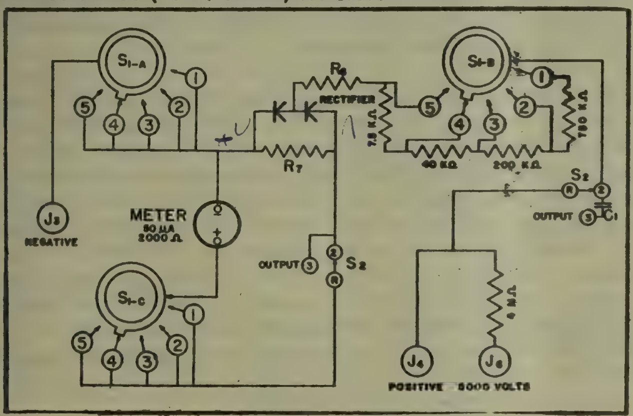


FIG. 4 AC VOLTAGE CIRCUIT

As the meter itself deflects only in proportion to the average current passing through it (and the average value of alternating current is zero), the current drawn by the instrument is rectified by means of a half-wave copper oxide rectifier circuit, thus obtaining an average value of current which is proportional to the applied voltage. The rectifier circuit permits only alternate half-cycles of the drawn current to pass through the meter. The remaining half-cycles of current by-pass the meter, and so the current through the meter is in effect a pulsating dc which causes a deflection proportional to its average value.

The current drawn by the instrument in the measurement of an a-c voltage is about twenty times the current drawn in the measurement of an equal d-c voltage. Since the d-c sensitivity is 20,000 ohms/volt, the a-c sensitivity is therefore 1000 ohms/volt. This comes about as an unavoidable result of the current-resistance characteristic of metallic rectifiers.

At very low currents, the forward resistance of the rectifier increases very rapidly with decreasing current. As this effect is compounded by variation between rectifiers of the same type, it would therefore be impractical to have the instrument operate in this range of unstable resistance.

At higher currents, the rectifier resistance is practically constant, and compensation is obtained with potentiometer R6 in series with the rectifier, and potentiometer R7 shunting the meter.

R6 is adjusted until the meter reads within the specified accuracy when the RANGE switch is set at the lowest voltage position; that is, when R6 has the greatest effect. R7 is adjusted for proper reading with the RANGE switch in the highest voltage position; that is, when R6 has the least effect. These adjustments are made at the factory and are permanent; no further calibration for a-c voltage measurement is necessary.

The current drawn on the 1000V range, at an instant when J4 is positive, traces the following path: from J4 to S2-B, to S1-B, to the 750K resistor, to the 200K resistor, to the 40K resistor, to the 7.5K resistor, to R6, to the right hand rectifier (the left hand rectifier will not pass current from right to left), dividing at the junction of S2-A and R7 (R7 shunts the meter). The meter current goes to S2-A, to S1-C, to the meter, to S1-A. The shunt current goes through R7 to S1-A where it unites with the meter current. The total current then goes to J3 and out of the instrument. At an instant when J3 is positive, the current direction is reversed. The path is the same except that the total current now passes through the left hand rectifier; no current passes through the meter or R7, as the right hand rectifier blocks current in this direction. On the 5000V range, the path is different only in that it runs from J6 through the 4 Megohm resistor to S2-B.

Resistance Measurement

Fig. 3 is a schematic diagram of the internal connections for resistance measurement. Note that the function switch, S2 is set at DC-OHMS (1) when the instrument is to be used as an ohmmeter. The three positions of the RANGE switch, S1 shown are as follows: 10 -- RX1, 11 -- RX100, 12 -- RX10K. Sections S1-A and S1-C shunt the meter in order to increase the current necessary for full scale deflection (this obviously lowers the center scale resistance readings). The purpose of the Zero Adjust (10K ohm) potentiometer is to compensate for variations in the battery terminal voltage and resistance. Section S1-D supplies the circuit with the correct voltage according to the range used.

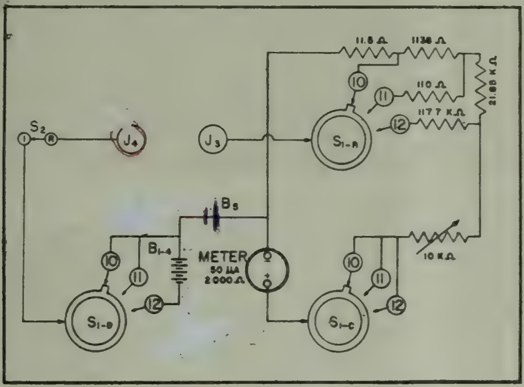


FIG. 5 RESISTANCE CIRCUIT

The unknown resistance is placed across the pin jacks J3 (-COMMON) and J4 (+). Tracing the circuit from J4, we go through S2 to the rotor of S1-D; through position #10 to battery B5; through the meter to the rotor of S1-C; through position #10 to the variable resistor; through the 21.85K ohm resistor; through the 1138 ohm resistor to #10 on S1-A, and through the rotor to J3.

Since we know the value of the applied voltage, the current through the meter and the other resistances in the circuit, we can tell the value of a resistor placed between J3 and J4, by dividing the voltage by the current, and subtracting the known resistance in the circuit.

DC Current Measurement

Fig. 4 is a schematic diagram of the internal connections for d-c current measurement. Note that the function switch, S2 is set at DC-OHMS (1) when the instrument is to be used as a d-c current meter. The four positions of the

RANGE switch shown are as follows: 6 -- 500MA, 7 -- 100MA, 8 -- 10MA and 10 AMP., 9 -- 100UA. The three sections S1-A, S1-C, and S1-D are used to vary the meter shunts to change the full scale current reading.

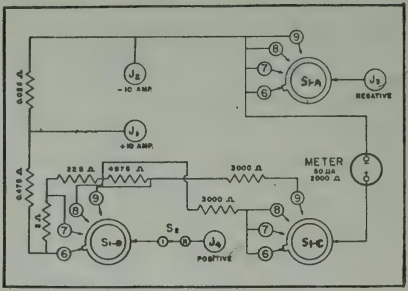


FIG. 6 DC CURRENT CIRCUIT

Following the current flow of the meter, we start at the negative terminal J3. The current flows through switch S1-A, through the meter, through pin 6 of S1-C, through the 3000 ohm resistor, through the 22.5 ohm resistor, through the 2 ohm resistor, through terminal 6 of S1-D, through S2 to the positive terminal J4. The other shunted portion of the current flows from terminal 6 of S1-A, through the .025 ohm resistor, through the 475 ohm resistor, through S1-D, through S2 to the positive terminal, J4. As the switch is moved from 6 to 9 the shunt resistance is progressively increased, with a consequent lower amount of current needed for full scale deflection.

Although it would be a comparatively simple matter to eliminate jacks J1 and J2, doing so would necessitate the high currents flowing through the various switch contacts, possibly causing inaccuracies and contact arcing.

Output Voltage Measurement

The output voltage measurement (see Fig. 2) description is essentially the same as that listed in the preceding AC section except that the condenser, C1, is used to block any DC component present.

Decibel Measurement

The operation of the DB range, (see Fig. 2), is essentially the same as that described under Output Voltage Measurement. The meter is calibrated in DB across a 500 ohm impedance.

maintenance

General

This instrument should require very little, if any, maintenance due to its inherent ruggedness and ability to withstand electrical surges. Care should be taken, however, to protect the instrument from any severe mechanical or electrical shock.

When in doubt of the voltage or current present in the circuit, always use the highest range and then proceed downward until the meter reads somewhere between 1/5 and full scale.

Battery Replacement

When it is no longer possible to zero the meter on the R x 1 and R x 100 ranges by rotating the ZERO OHMS knob with the test leads shorted, the single, large, 1.5 volt battery should be replaced.

When it is no longer possible to zero the meter on the R x 10K range by rotating the ZERO OHMS knob with the test leads shorted, the 4 small, 1.5 volt batteries should be replaced.

Both types of batteries are standard and readily obtainable. The large battery is of the flash light type, and the small batteries are of the pen light type.

Note: When replacing batteries, make certain that polarities are observed as shown in the schematic diagram.
The instrument may be taken out of its case by removing the 4 panel screws. Figures 7 and 8 are interior photographs in the instrument, giving the symbol number of each component. Use these photographs in conjuction with the skhematic diagram, Fig 9, when servicing the instrument.
Note that only Fig. 9, the schematic diagram, shows the switches as they are actually constructed. The individual circuit diagrams given in the circuit theory section contain simplified drawings of the switches for the purpose of understanding the operation.

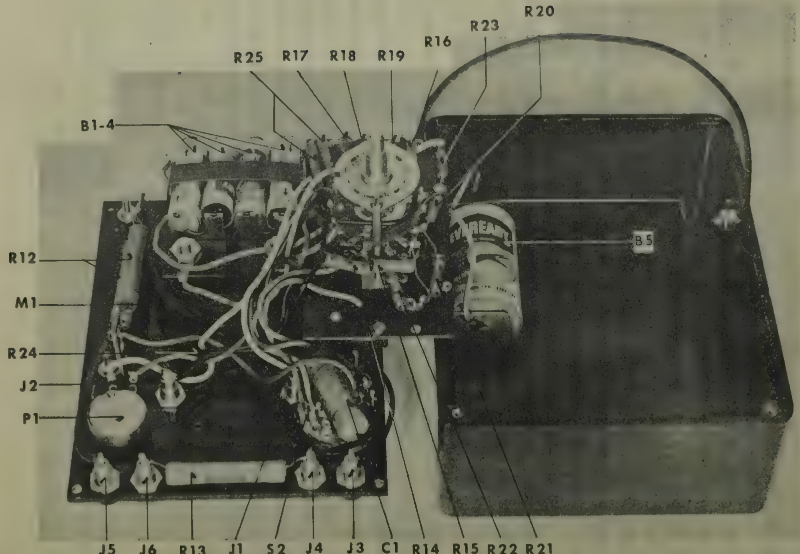


FIG. 7 REAR OF PANEL VIEW - SWITCH EXPOSED

SYM	DESCRIPTION
B1-4	bat, size AA
B5	bat, size D
C1	cap, .1mfd
J1	jack, +10 amp.
J2	jack, -10 amp.
J3	jack, neg.
J4	jack, pos.
J5	jack, dc, 5KV
J6	jack, ac, 5KV
M1	meter, 50ua
P1	pot, 10K ohm
R12	res, 4M ohm
R13	res, 80M ohm
R14	res, 3000 ohm
R15	res, 3000 ohm
R16	res, 48K ohm
R17	res, 4M ohm
R18	res, 800K ohm
R19	res, 150K ohm
R20	res, 2 ohm
R21	res, 22.5 ohm
R22	res, 4975 ohm
R23	res, .475 ohm
R24	res, .025 ohm
R25	res, 15M ohm
S2	switch, 2p - 3 pos.

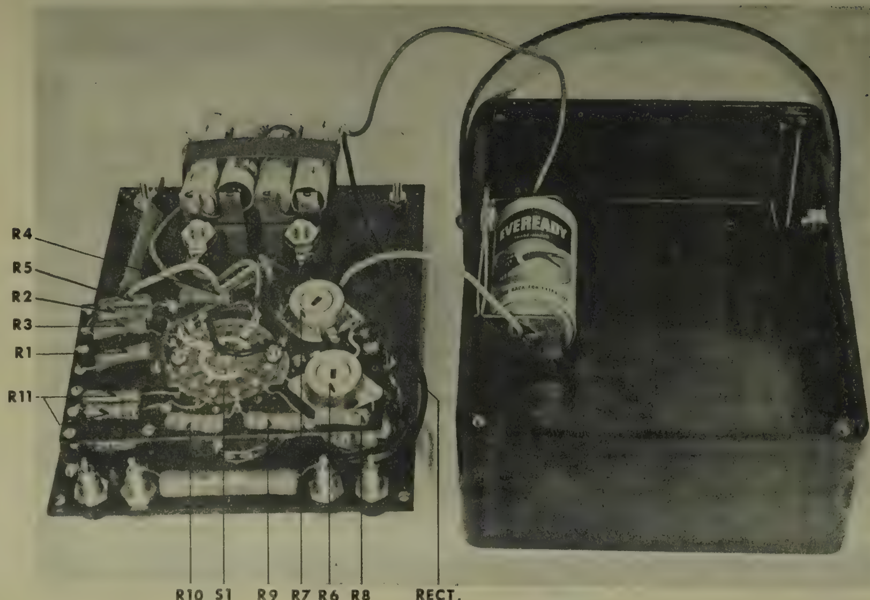


FIG. 8 REAR OF PANEL VIEW

SYM	DESCRIPTION
R1	res, 11.5 ohm
R2	res, 1138 ohm
R3	res, 110 ohm
R4	res, 117.7K ohm
R5	res, 21.85K ohm
R6	pot, series
R7	pot, shunt
R8	res, 7500 ohm
R9	res, 40K ohm
R10	res, 200K ohm
R11	res, 750K ohm
S1	switch, 4 p - 12 pos.

parts list

PARTS LIST FOR MODELS 565-555

Stock#	Sym.	Description	Amount
1	B1-B4	bat, 1.5 volt, size AA	4
2	B5	bat, 1.5 volt, size D	1
3	C1	cap, paper, .1 mfd	1
4	H1	cabinet	1
5	H2	panel	1
6	H3	handle	1
7	H4	screw, 10-24	2
8	H5	nut, hex, 10-24	2
9	H6	eyelet, brass, #10	2
10	H7	washer, 3/8 flat	3
11	H8	washer, #6 lock	2
12	H9	bracket, large battery	1
13	H10	screw, machine, 4-36 X 3/8	4
14	H11	nut, meter mounting	4
15	H12	screw, flat head, 2-56	1
16	H13	nut, hex, 2-56	1
17	H14	board, battery	1
18	H15	screw, #4 PK	2
19	H16	nut, hex, 3/8	3
20	H17	washer, lock, 3/8	2
21	H18	nut, hex, jack	6
22	H19	knob, bar	1
23	H20	knob, small pointer	1
24	H21	knob, small round	1
25	H22	washer, meter	4
26	H23	nut, meter	2
27	H24	lug, meter	2
28	**H25	board, resistor	1
29	H26	wire, hook up	pc.
30	H27	wire, bare	pc.
31	H28	tubing, small	pc.
32	H29	wire, high voltage	pc.
33	J1,4,5	jack, red	3
34	J2,3,6	jack, black	3
35	M1	meter, 50 ua	1
36	P1	pot, 10K ohm	1
37	*R1	res, 11.5 ohm	1
38	*R2	res, 1138 ohm	1
39	*R3	res, 110 ohm	1
40	*R4	res, 117.7K ohm	1
41	*R5	res, 21.85K ohm	1
42	**R6	pot, series	1
43	**R7	pot, shunt	1
44	*R8	res, 7500 ohm	1
45	*R9	res, 40K ohm	1
46	*R10	res, 200K ohm	1
47	*R11	res, 750K ohm (2-375K)	1
48	*R12	res, 4M ohm (2-2M)	1
49	*R13	res, 80M ohm	1
50	*R14	res, 3000 ohm	1
51	*R15	res, 3000 ohm	1
52	*R16	res, 48K ohm	1
53	*R17	res, 4M ohm	1
54	*R18	res, 800K ohm	1
55	*R19	res, 150K ohm	1
56	*R20	res, 2 ohm	1
57	*R21	res, 22.5 ohm	1
58	*R22	res, 4975 ohm	1
59	*R23	res, .475 ohm	1
60	*R24	res, .025 ohm	1
61	*R25	res, 15M ohm (2-7.5M)	1
62	S1	switch, rotary, 4 pole - 12 pos	1
63	S2	switch, rotary, 2 pole - 3 pos	1
64	TB1	strip, terminal, 1 post	1
65	TB2	strip, terminal, 2 post	1
66	**	rectifier	1

* 1% in Model 555.
**Factory Preassembled.

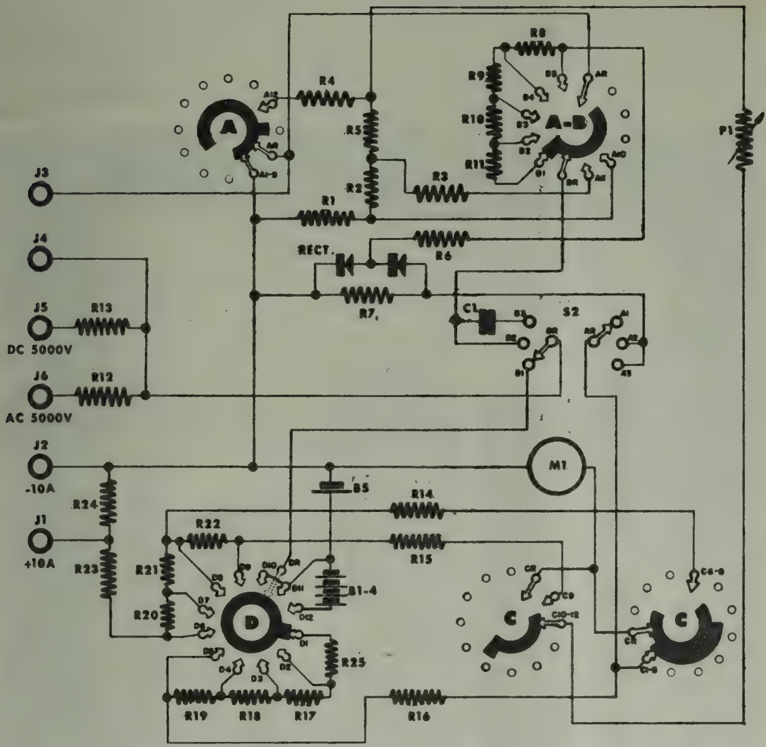


FIG. 9 SCHEMATIC DIAGRAM

S2 FUNCTION

1	1KV-5KV
2	250 V
3	50 V
4	10 V
5	2.5 V
6	500 MA
7	100 MA
8	10 MA-AMPS
9	100 uA
10	R x 1
11	R x 100
12	R x 10K

S1 RANGE

1	DC-OHMS
2	AC
3	OUTPUT

The Exclusive EICO *Make-Good*

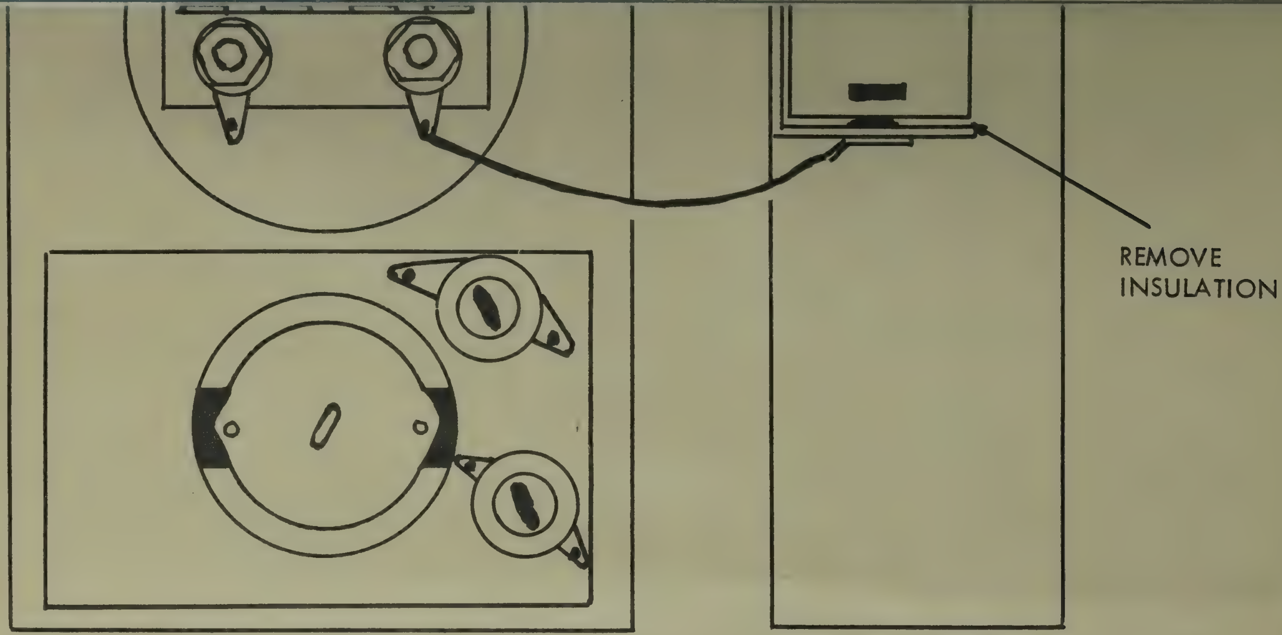
GUARANTEE

Each EICO Kit and Instrument is doubly guaranteed, by EICO and your jobber, to contain only selected quality components. EICO guarantees to replace any component which might become defective in normal use if returned to the factory (transportation charges pre-paid) within 90 days of purchase. EICO guarantees all Kits assembled according to EICO's simplified instructions will operate as specified therein. EICO guarantees service and calibration for every EICO Kit and Instrument at a nominal charge.

EICO

ELECTRONIC INSTRUMENT CO., INC. 84 WITHERS STREET BROOKLYN, . N. Y.

This guarantee is valid only when the enclosed card is properly filled in and returned for registration.


REMOVE
INSULATION

The Exclusive EICO *Make-Good*

GUARANTEE

Each EICO Kit and Instrument is doubly guaranteed, by EICO and your jobber, to contain only selected quality components. EICO guarantees to replace any component which might become defective in normal use if returned to the factory (transportation charges pre-paid) within 90 days of purchase. EICO guarantees all Kits assembled according to EICO's simplified instructions will operate as specified therein. EICO guarantees service and calibration for eyery EICO Kit and Instrument at a nominal charge.

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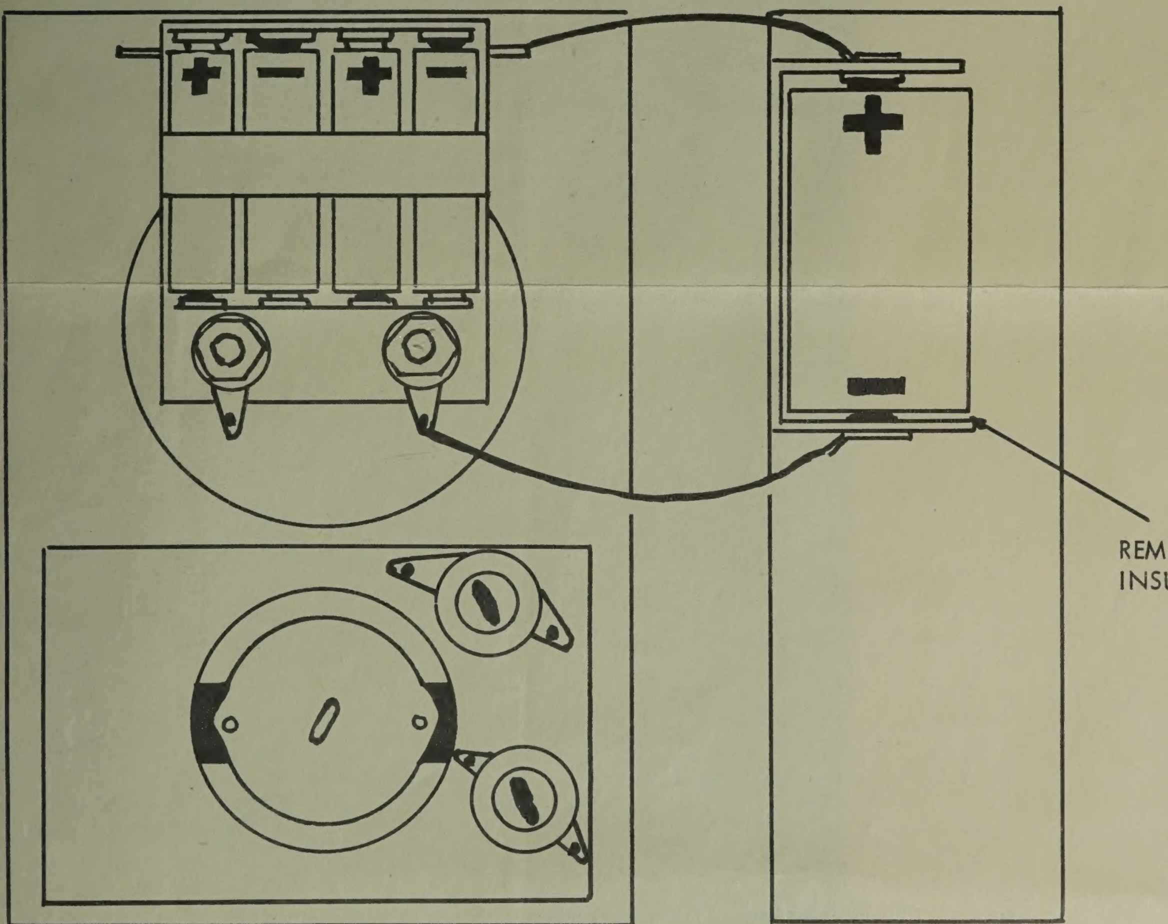
MODEL 555 - 565 ADDENDA

The batteries in this VOM has been packed separately to prevent shorting. Remove batteries from envelope and install in VOM bracket as indicated in pictorial diagram. Also remove insulating paper from negative side of larger battery. To make sure batteries are in properly, short input terminals and put selector to R X 1. Meter indicator needle should move to the right.

PUT BATTERIES IN THIS WAY
CAUTION: OBSERVE POLARITY



µF	ohms
.01	500,000
.1	5,000,000
1.	50,000,000